PATENT COOPERATION TREATY

PCT

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY PCT
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PE17682PC00	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/SE2002/002332	International filing date *(day/month/year)* 13-12-2002	Priority date *(day/month/year)* - - -

International Patent Classification (IPC) or national classification and IPC

H04L 29/08, G06F 11/00, H04Q 7/38

Applicant

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1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of __4__ sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

   a. ☒ *(sent to the applicant and to the International Bureau)* a total of __3__ sheets, as follows:

      ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). ˙

      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s))

      _____ , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

   ☒ Box No. I   Basis of the report

   ☐ Box No. II   Priority

   ☐ Box No. III   Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

   ☐ Box No. IV   Lack of unity of invention

   ☒ Box No. V   Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

   ☐ Box No. VI   Certain documents cited

   ☐ Box No. VII   Certain defects in the international application

   ☐ Box No. VIII   Certain observations on the international application

Date of submission of the demand 08-07-2004	Date of completion of this report 24-02-2005
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Form PCT/IPEA/409 (cover sheet) (January 2004)

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/SE2002/002332

Box No. I	Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This report is based on a translation from the original language into the following language _____ , which is the language of a translation furnished for the purposes of:

   ☐ international search (under Rules 12.3 and 23.1(b))

   ☐ publication of the international application (under Rule 12.4)

   ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

   ☐ the international application as originally filed/furnished

   ☒ the description:

   pages __1-12_____ as originally filed/furnished

   pages* _____ received by this Authority on _____

   pages* _____ received by this Authority on _____

   ☒ the claims:

   pages _____ as originally filed/furnished

   pages* _____ as amended (together with any statement) under Article 19

   pages* __1-3_____ received by this Authority on __05-01-2005_____

   pages* _____ received by this Authority on _____

   ☒ the drawings:

   pages __1-5_____ as originally filed/furnished

   pages* _____ received by this Authority on _____

   pages* _____ received by this Authority on _____

   ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

   ☐ the description, pages _____

   ☐ the claims, Nos. _____

   ☐ the drawings, sheets/figs _____

   ☐ the sequence listing *(specify)*: _____

   ☐ any table(s) related to the sequence listing *(specify)*: _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

   ☐ the description, pages _____

   ☐ the claims, Nos. _____

   ☐ the drawings, sheets/figs _____

   ☐ the sequence listing *(specify)*: _____

   ☐ any table(s) related to the sequence listing *(specify)*: _____

* *If item 4 applies, some or all of those sheets may be marked "superseded."*

Form PCT/IPEA/409 (Box No. I) (January 2004)

Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-16	YES
	Claims		NO
Inventive step (IS)	Claims	1-16	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-16	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

The object of the invention is to achieve reliable and informative error messages for client-server communication through an intermediate device. The error status code sent from the server is transformed into an informative error description message including an extended error description text as well as a new status code.

Documents cited in the International Search Report:
D1: WO 0157666, A2
D2: US 6353855, B1
D3: US 2002126708, A1
D4: WO 02096063, A2
D5: US 6134680, A

Document D1 is considered to represent the closest prior art.

D1 relates to a method for generating error messages in a web based application, said method comprising the steps of searching said application for a predetermined error number; retrieving an error message corresponding to said error number; applying said error message to a style sheet in an error form; and displaying said error form on a requesting device (abstract; page 3, line 1- line 25; page 4, line 29- page 6, line 12; page 7, line 26- page 8, line 2; page 19, line 24- page 20, line 27; and claim 1).

The invention according to independent amended claims 1, 9 and 16 differs from D1 by transforming, at the intermediate device, the first status code into an error description message comprising an error description text and a second HTTP status

.../...

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of: Box V

code. This step is performed in D1 by a processor in the Web Server and not by the intermediate server as in the claimed invention. Placing the processor and the error translation procedure in the intermediate device (Proxy server), which can be compared to the gateway function in D1, is an obvious step to a person skilled in the art. The object of the invention is to provide textual information to an end user describing the error.

However, the main objective of the present invention according to the amended claims is to overcome the problem of inadequate or misleading server-originating error information to the end user, which when using on external server or an MMSC, for example, may wrongly make the end user believe that the service is bad. Document D1, on the other hand, is concerned with providing a mechanism for formalized error handling and more user-friendly error messages.

In D2 there is described a procedure where the intermediate device, placed between a client sending requests to a server, is capable of translating and handling status descriptions based on the status indications and the determined characteristics of the users.

However, D2 does not suggest providing a new status code. The only status code presented is the first one, accompanying the original error message in the conventional way. D2 simply explains in a more user-friendly way what the first HTTP status code means.

The cited prior art documents are entirely focused on the content of the status description/error message to make it user friendly or capable of handling multilingual systems, and the control of the error information lies with the server device. D1 and D2 use one status code in a most conventional manner and contain no indication or suggestion pointing towards the solution claimed in accordance with the present invention.

Thus, the invention according to amended independent claims 1, 9 and 16 is novel and is considered to involve an inventive step.

AMENDED CLAIMS

1. An error messaging method for a communication system where a wireless client terminal (10) communicates with a server (30) through an intermediate device (20), **characterized by** the steps of:

receiving, at the intermediate device (20), a first Hypertext Transfer Protocol (HTTP) status code from the server (30), the first status code being an error status code;

transforming, at the intermediate device, the first status code into an error description message comprising an error description text (24) and a second HTTP status code, the second status code indicating success and being associated with compulsory display of the error description text (24) at the client terminal (10); and

transmitting the error description message to the client terminal (10), whereby display of the error description text (24) at the client terminal (10) is enforced by the second status code.

2. The method of claim 1, **characterized in that** the transforming step in turn comprises extracting the error description message from an error information table (22) in response to input parameter information including the first status code.

3. The method of claim 2, **characterized in that** the input parameter information further includes a Uniform Resource Locator (URL) portion pointing to the server (30) and in that the extracted error description message is resource-location dependent.

4. The method of any of previous claims, **characterized in that** the transmitting step is performed by the intermediate device (20).

5. The method of any of previous claims, **characterized in that** the intermediate device (20) is selected from the group of an HTTP proxy and a Wireless Application Protocol (WAP) gateway.

AMENDED SHEET

6. The method of any of previous claims, **characterized in that** the server (30) is a Multimedia Messaging Service (MMS) center.

7. The method of claim 6, **characterized in that** the error description steps are initiated by a client request for a first MMS message and in that the error description message comprises a second MMS message.

8. The method of any or previous claims, **characterized in that** the error description text is displayed at the client terminal (10) by means of a language selected from the group of the Wireless Markup Language (WML) and the Hypertext Markup Language (HTML).

9. A proxy server (20) arranged between a wireless client terminal (10) and a server (30) in a communication system, **characterized by** error messaging means comprising:

means for receiving a first HTTP status code from the server (30), the first status code being an error status code;

means for transforming the first status code into an error description message comprising an error description text (24) and a second HTTP status code, the second status code indicating success and being associated with compulsory display of the error description text (24) at the client terminal (10); and

means for transmitting the error description message to the client terminal (10), whereby display of the error description text (24) at the client terminal (10) is enforced by the second status code.

10. The proxy of claim 9, **characterized in that** the means for transforming in turn comprises means for extracting the error description message from an error information table (22) in response to input parameter information including the first status code.

AMENDED SHEET

11. The proxy of claim 10, **characterized in that** the input parameter information further includes a URL portion pointing to the server (30) and in that the extracted error description message is resource-location dependent.

12. The proxy of any of claims 9-11, **characterized by** being selected from the group of an HTTP proxy and a WAP gateway.

13. The proxy of any of claims 9-12, **characterized by** communicating with a MMS center.

14. The proxy of claim 13, **characterized in that** the error description message comprises a MMS message.

15. The proxy of any of claims 9-14, **characterized in that** the error description text is displayed at the client terminal (10) by means of a language selected from the group of WML and HTML.

16. Error messaging means arranged in a MMS center (30) communicating with a wireless client terminal (10) through a proxy server (20), **characterized by**:

means for detecting an error related to an HTTP request from the client terminal (10);

means for generating an error description message comprising an HTTP status code for success and a MMS message (24) with an error description text based on the detected error, said status code being associated with compulsory display of the error description text at the client terminal (10); and

means for transmitting the error description message to the client terminal (10) through the proxy (20), whereby display of the error description text (24) at the client terminal (10) is enforced by the HTTP status code for success.

AMENDED SHEET